

CLAIMS

What is claimed is:

- 5 1. An electronic component reliability determination method comprising:

 executing an initialization process;

 implementing a field condition determination process;

 performing a field condition reliability analysis process; and

- 10 performing a reliability information management process.

2. An electronic component reliability determination method of claim 1 further comprising sensing and tracking initial component startup time after shipping.

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3. An electronic component reliability determination method of claim 1 further comprising:

 checking the integrity of non volatile memory;

 initializing random access memory (RAM) with previously stored

20 values;

 defining a reliability sampling period or interval; and

 starting background tasks.

4. An electronic component reliability determination method of claim 1 wherein said field condition determination process includes sensing operational parameter information.
5. An electronic component reliability determination method of claim 4 wherein said operational parameter information includes a temperature measurement associated with a component.
6. An electronic component reliability determination method of claim 1 further comprising establishing an interface for presenting reliability information to a user.
7. An electronic component reliability determination method of claim 1 further comprising determining a field condition adjustment factor value and instantaneous failure rate value.
8. An electronic component reliability determination method of claim 7 wherein said instantaneous failure rate value is used to determine reliability of a component.
9. An electronic component reliability determination method of claim 7 wherein said field condition reliability analysis process includes determination of reliability index values for components and a system.

10. An electronic component reliability determination method of claim 1 further comprising saving parameter information and present value of a reliability indicator.

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11. An electronic component reliability determination method of claim 10 further comprising performing a reliability information condensing process.

12. An electronic component reliability determination method of claim 11
10 wherein said reliability information condensing process comprises:

saving a reliability related reference value;
receiving an updated reliability related value;
determining a storage relationship value; and
saving said storage relationship value.

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13. An electronic component reliability determination method of claim 1 wherein said field condition reliability analysis process includes determining a present value of a reliability indicator for a system.

20 14. An electronic component reliability determination system comprising:
a sensor for sensing operational parameter information;
a bus for communicating information including said operational
parameter information;

a reliability processing component for performing instructions including instructions for ascertaining a field condition adjusted reliability value; and

a memory for saving said operational parameter information and said
5 field condition adjusted reliability value.

15. An electronic component reliability determination system of Claim 14 wherein said sensor includes a diode inside a component and said diode is utilized to establish a temperature measurement indication.

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16. An electronic component reliability determination system of Claim 14 wherein said sensor includes an ambient temperature measuring device.

17. An electronic component reliability determination system of Claim 14
15 wherein said sensor includes air intake and air exhaust temperature measuring components.

18. An electronic component reliability determination system of Claim 14 wherein said reliability processing component uses a temperature
20 measurement detected by said sensor to calculate the temperature stress and a reliability adjustment factor.

19. An electronic component reliability determination system of Claim 14

wherein said reliability processing component performs instructions for calculating an instantaneous failure rate.

20. An electronic component reliability determination system of Claim 14
5 wherein said reliability processing component performs instructions to determine an adjusted instantaneous reliability value.

21. An electronic component reliability determination system of Claim 14
wherein information is stored in said memory component in a reliability
10 information condensing process format.

22. A computer readable medium with instructions embedded therein for causing a processor to implement a reliability determination process including:

15 an initialization module for directing implementation of an initialization process;

a reliability determination background module for directing a field condition determination process and a field condition reliability analysis process; and

20 a reliability determination runtime module for interfacing with an operating system.

23. A computer readable medium of claim 22 wherein said initialization module includes instructions for:

checking the integrity of non volatile memory;

initializing random access memory (RAM) with previously stored

5 values;

defining a reliability sampling period or interval; and

starting background tasks.

24. A computer readable medium of claim 22 wherein said background

10 module includes instructions for implementing reliability associated firmware activities.

25. A computer readable medium of claim 22 wherein said background

module divides background tasks into multiple background threads that

15 operate separately.

26. A computer readable medium of claim 22 wherein said runtime

module performs reliability determination activities including calculation of instantaneous failure rates and cumulative reliability index values.

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27. A communication device comprising:

means for controlling information communication;

means for determining component reliability adjusted in accordance with field condition impacts; and

means for organizing information associated with said component reliability.

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28. A communication device of claim 27 further comprising a means for ascertaining field condition information.

29. A communication device of claim 27 wherein said field condition
10 information includes a temperature measurement.

30. A communication device of claim 27 wherein said means for
determining component reliability adjusted in accordance with field
condition impacts determines an instantaneous failure rate and a cumulative
15 reliability indication.